REMARKS

In the Office Action, the Examiner rejects Claims 1-4, 6, 12, and 18 under 35 U.S.C. § 102(b) as being anticipated by G.B. Pat. App. Pub. No. 2,054,268 to Meirion et al. ("Meirion"). We note that the Office Action states that Claims 6-12, inclusive, are rejected on these grounds, but this appears to be a typographical given the subsequent comments in the Office Action. Claims 1-4, 6, 12, and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 5,744,765 to Yamamoto ("Yamamoto"). Claims 13-15 and 17 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 4,246,452 to Chandler ("Chandler"). Claims 7-11, 13, 16, and 19 are rejected under 35 U.S.C. § 103(a) as being obvious over Yamamato in view of Chandler.

In response to the Office Action, Applicant has amended independent Claims 1 and 13 so as to further patentably distinguish the cited references. Non-substantive amendments have been made to Claims 2-4 and 8 so as to clarify the claims. Claim 19 has been cancelled. In light of the amendments and following arguments Applicant respectfully submits that the rejections are overcome and all claims are in condition for allowance.

The Rejections of Independent Claim 1 under §102(b) are Overcome

In the Office Action, the Examiner asserts that independent Claim 1 is anticipated both by Meirion and by Yamamoto. Amended independent Claim 1 is generally directed to an annular dome switch structure comprising an upper dome sheet and an underlying substrate. The underlying substrate comprises two annular concentric pads. The upper dome sheet is configured to make electrical contact with the connection pads of the underlying substrate when the upper dome sheet is depressed towards the underlying substrate. Support for the amendments may be found at least at page 8, lines 6-7 and at page 8, lines 17-22.

Meirion teaches a push button operated switch of the snap dome type. The push button has a moveable element which is a "double" dome disc having an inner dome and an outer dome. The inner dome is stiffer than the outer dome. When force is applied to the crest of the inner dome, the outer dome collapses so that the annular contact bridges the stationary contacts followed by collapse of the inner dome. The arrangement taught by Meirion provides a degree of

pretravel before contact is made and provides for over-travel after contact is made (abstract). Meirion teaches that this improves the reliability of the push button (see line 20 to 23 of Meirion). However, Meirion does not suggest an "annular dome switch". Although Meirion discloses part of the push button having an annular outer dome 3, the annular outer dome taught by Meirion does not extend along the length of a annular shaped path with respect to the entire cross sectional shape (e.g. part 3 and 2 of the push button) as recited by independent Claim 1. Indeed, the push button switch taught by Meirion operates in a very different way from the annular dome switch of Claim 1.

Further, Meirion fails to disclose the underlying substrate comprising two annular concentric connection pads as recited by independent Claim 1. At most, Meirion teaches providing a single conductive annulus which makes electrical contact with electrical conductors 7 and 8. Meirion teaches that the annular conductor 4 contacts a plurality of electrical conductors 7 and 8 (see line 80) and therefore it is clear that Meirion fails to disclose even one annular conductive pad on the substrate.

Further, a person having skill in the art would not be motivated to modify Merion to provide two annular concentric connection pads on the substrate. Merion is silent on providing such a feature and only teaches providing a plurality of electrically isolated contacts (features 7,8). Indeed, Merion teaches merely providing a modified standard dome switch. In this way, Merion can only provide a single signal (e.g. on or off) when the push button of Merion is actuated. There is no reason for the skilled person to modify Merion to provide annular concentric contact pads on substrate 5 as an annular concentric pad could not produce any additional directional information when the push button is operated because the push button of Merion only moves in the longitudinal axisof the plunger 9. Accordingly, Applicant respectfully submits that independent Claim 1 is patentably distinct over Meirion and the rejection under 35 U.S.C. § 102(b) is overcome.

The Office Action further asserts that Yamamoto anticipates Claim 1. With respect, the Examiner's comments in the Office Action are moot in light of amended Claim 1. Yamamoto discloses a selecting switch provided to support moveable contact points. The selecting switch includes circular elastic support walls disposed along an arrangement circle of selecting stationary contact points and a pushing portion (abstract). However, Yamamoto fails to disclose

the underlying substrate comprising two underlying annular concentric connection pads as recited by independent Claim 1. Indeed, Yamamoto teaches that at least some of the contact points 4 are electrically isolated (see column 9, lines 33 to 52).

Further, there is no motivation for a person having skill in the art to modify Yamamoto to provide the combination of features as required by independent claim 1. Yamamoto teaches that the tiltable switch 42 provides an input direction when the moveable contact point 13 comes in contact with stationary contact point 4. The number of detectable directions can be increased by increasing the number of stationary contact points. However, Yamamoto explicitly states that independent electrically isolated electrodes are required to detect each direction. Yamamoto only contemplates a limited number of detectable directions, for example, with 24 stationary contact points, 48 directions can be detected (e.g. see column 10, lines 14 to 17). However, there is no motivation in Yamamoto to provide two annular concentric conduction pads on the substrate. This is because the skilled person would understand that in order to detect directionality when the tilt switch of Yamamoto is actuated, the stationary contacts need to be electrically isolated. Therefore, by providing two continuous electrically conductive concentric annular connection pads such directionality cannot be detected in the arrangement of Yamamoto. Therefore, the skilled person would understand that such a modification to Yamamoto would frustrate the teachings therein and goes against the teachings of Yamamoto. Accordingly, Applicant respectfully submits that independent Claim 1 is patentably distinct over Yamamoto and the rejection under 35 U.S.C. § 102(b) is overcome.

Therefore, since neither Meirion nor Yamamoto teaches or suggests an annular dome switch structure as recited by independent Claim 1 and there is no motivation to modify or otherwise combine the references, applicant respectfully submits that the rejections of Claim 1 are overcome and Claim 1 is in condition for allowance. Since dependent Claims 2-4 and 6-12 each contain the recitations of independent Claim 1, Applicant respectfully submits that the rejection of these claims is overcome for at least the reasons discussed above and as such Claims 2-4 and 6-12 are in condition for allowance.

The Rejection of Independent Claim 13 under §102(b) is Overcome

The Office Action asserts that independent Claim 13 is anticipated by Chandler. However, the Examiner's comments are now moot in light of amendments made to independent Claim 13. Claim 13 is directed to an input apparatus for a multimedia device comprising a rotator wheel, means for detecting rotational movement of the rotator wheel, and select means. Claim 13 has been amended to define the select means as an annular dome switch including all of the recitations of amended independent Claim 1.

Chandler teaches a switch apparatus having a first and second surface with conductive pattern segments thereon in proximate spaced overlying relation. Each of the patterns has a circular array of alternating solid and interleaved conductive portions. One pattern is moveable toward the other by tilting the disc (abstract). Chandler, however, fails to teach or suggest an input apparatus comprising an annular dome switch select means having any of the recitations of amended independent Claim 13. Accordingly, Applicant respectfully submits that independent Claim 13 is patentably distinct over Chandler and the rejection under 35 U.S.C. § 102(b) is overcome.

The Rejection of Independent Claim 13 under §103(a) is Overcome

The Office Action further rejects independent Claim 13 under 35 U.S.C. §103(a) as being unpatentable over Yamamoto in view of Chandler. As previously discussed, neither Yamamoto nor Chandler discloses all of the recitations in amended independent Claim 13. In light of the previous and further remarks, Applicant additionally respectfully submits that the combination of Yamamoto and Chandler does not teach or suggest amended independent Claim 13 either and even if the combination did, a person having skill in the art would not be motivated to combine the references.

In this regard, the Office Action alleges that it would have been obvious to one of ordinary skill to use a rotator wheel instead of a tilting knob in Yamamoto. However, Yamamoto explicitly states that the tilting body can freely move in the longitudinal direction of the leg portion 41 but cannot be rotated around a longitudinal axis of the leg portion (see column 6, lines 38 to 41). Accordingly, a person having skill in the art would clearly and completely understand

that the tilting knob of Yamamoto does not rotate. Instead, the tilting knob pivots about supporting shafts 18 and 31 in perpendicular directions. In this way a portion of pushing section 33 engages pushing portion 12. Therefore, in order to actuate the tilting knob, a pivoting action must occur.

Further, a person having skill in the art would not be motivated to combine the rotary input device of Chandler because Yamamoto explicitly teaches against rotation. In this regard, Yamamoto teaches providing a central switch 8 which the rotary device of Chandler would interfere with by virtue of the rotary device of Chandler rotating about the spindle 108. In this way, depressing the rotary device of Chandler would actuate both the push portion 12 and the head portion 8 of Yamamoto. This result would be, of course, undesirable to a person having skill in the art.

In contrast embodiments of the present invention provide an unlimited number of contact points along the annular connection pads. In this way, embodiments of the present invention are able to resolve far more locations about the annular dome switch when it is actuated. This means that the annular dome switch is far more sensitive that any of the arrangements cited in the prior art. Advantageously, the annular dome switch as described in the embodiments of the present invention can detect even the slightest of contact between the upper dome sheet and the connection pads. In this way, there are no arrangements where the upper dome sheet is in contact with the connection pads and the switch is not actuated. Comparing this to the cited prior art, for example Yamamoto, a switch may be depressed and the moveable contact points 13 may be only in contact with the common electrode 4B, but not with an isolated electrode 4A and thus no circuit is completed and the switch is not actuated. Accordingly, none of the cited references, taken alone or in combination, would result in a combination of features falling within the scope of independent Claim 13.

Therefore, since none of the cited references, taken alone or in combination, teaches or suggests independent Claim 13, applicant respectfully submits that the rejections of Claim 13 are overcome and Claim 13 is in condition for allowance. Since dependent Claims 14-18 each contain the recitations of independent Claim 13, Applicant respectfully submits that the rejection of these claims is overcome for at least the reasons discussed above and as such Claims 14-18 are in condition for allowance.

CONCLUSION

In view of the amended claims and remarks presented above, it is respectfully submitted that all of the present claims of the present application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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